Forestry Canada Forêts Canada

NO. 210

Forestry Canada - Maritimes Region

TECHNICAL NOTE

MULTI-AGENCY PLANTATION PEST SURVEYS IN NEW BRUNSWICK IN 1988

Severe or moderate damage was found on at least some trees in 115 of the 188 plantations (61.2%) assessed in New Brunswick in 1988, even though 92.9% of the 9400 trees were classified as healthy during multi-agency plantation pest assessment surveys. Aside from representing considerable financial investment, forest plantations are also an investment in the future. Much of the wood used in the next century will come from plantations. Insects and diseases pose the greatest threat to the orderly development of plantations. Protecting them from damage is of utmost importance if our expectations are to be realized.

It is no longer possible for any one organization to look after the health of the ever-increasing number of plantations in the Province. Realizing this, joint federal-provincial-industrial plantation pest assessment surveys have been conducted annually since 1986. Although the number of industrial organizations varies somewhat from year to year, depending on other priorities, the following companies have participated in joint surveys:

Canadian Pacific Forest Products Ltd.
- Miramichi Division (CPFP),
Consolidated Bathurst Inc. (CBI),
Fraser Inc. (Fras),
J.D. Irving Ltd. (JDI), and
N.B.I.P. Forest Products Inc. (NBIP).

NURSERIES ☐
PLANTATIONS ☐
SILVICULTURE ☐
UTILIZATION ☐
ECONOMICS ☐
TREE IMPROVEMENT ☐
INSECTS AND DISEASES ■

Forestry Canada - Maritimes Region
P.O. Box 4000, Fredericton, N.B. E3B 5P7
P.O. Box 667, Truro, N.S. B2N 5E5
P.O. Box 190, Charlottetown, P.E.I. C1A 7K2

Cette publication est aussi disponible en français sur demande

Provincial participation came from the New Brunswick Department of Natural Resources (DNR). The Forest Insect and Disease Survey (FIDS) of Forestry Canada - Maritimes Region (FIDS) provided planning, training, co-ordination, identification services, summary, and analysis.

Assessments included detailed examination of all parts of 50 trees in each of the 188 plantations surveyed. Trees were selected in a prescribed manner. The subplots, of five trees each, were selected along a pre-determined line of travel through the plantation. The distance between subplots varied according to the size of the plantation to ensure good coverage and an adequate representation of conditions. Pest problems encountered between subplots or off the line of travel were noted but not considered in calculations. A little over one-third of the plantations were assessed twice to maximize the detection of pests present during different times of the season. Of the 188 plantations assessed in 1988, 131 were spruce, 50 pine and 7 of other species.

The results of the survey are presented here in a series of tables, organized to show the various conditions in the five DNR regions.

L.P. Magasi
R.A. Simpson
A.M. Jones

Forest Insect and Disease Survey

May 1989

Table 1. Summary of plantation assessments by tree species and organization conducting field work in the various resource management regions in New Brunswick in 1988

Region	Tree Species	Total plantations assessed	Organization				
			DNR	CBI	Fras	JDI	CPFP
1	Black spruce	17	3	–	6	8	–
	White spruce	2	–	2	–	–	–
	Spruce (unspec)	5	5	–	–	–	–
	Jack pine	8	6	–	1	1	–
	Mixed species	4	3	–	1	–	–
	Total for Region	**36**	**17**	**2**	**8**	**9**	**0**
2	Black spruce	3	3	–	–	–	–
	White spruce	1	1	–	–	–	–
	Jack pine	6	6	–	–	–	–
	Total for Region	**10**	**10**	**0**	**0**	**0**	**0**
3	Black spruce	7	7	–	–	–	–
	White spruce	7	–	7	–	–	–
	Spruce (unspec)	3	3	–	–	–	–
	Jack pine	29	15	14	–	–	–
	Total for Region	**46**	**25**	**21**	**0**	**0**	**0**
4	Black spruce	11	10	–	–	–	1
	White spruce	6	6	–	–	–	–
	Spruce (unspec)	1	1	–	–	–	–
	Jack pine	3	2	–	–	–	1
	Red pine	3	2	–	–	–	1
	Larch	1	1	–	–	–	–
	Mixed	1	1	–	–	–	–
	Total for Region	**26**	**23**	**0**	**0**	**0**	**3**
5	Black spruce	44	4	17	23	–	–
	White spruce	24	5	15	4	–	–
	Red pine	1	–	–	1	–	–
	Larch	1	–	–	1	–	–
	Total for Region	**70**	**9**	**32**	**29**	**–**	**–**
Total for New Brunswick		**188**	**84**	**55**	**37**	**9**	**3**

Table 2. Condition of pine and spruce trees by tree part in plantations assessed in Nev R

Region	Total no. Of trees	NEEDLES Condition categories (%)					BUDS Condition categories (%)					SHOOTS Condition categories (%)				
		Healthy	Trace	Light	Mod.	Sev.	Healthy	Trace	Light	Mod.	Sev.	Healthy	Trace	Light	Mod.	S
Pine																
1	400	87.1	9.7	2.3	0.5	0.5	99.7	0.2	0.0	0.0	0.2	94.5	4.2	1.4	0.0	
2	300	61.8	33.2	4.6	0.4	0.0	100.0	0.0	0.0	0.0	0.0	99.8	0.0	0.0	0.2	
3	1450	45.1	52.6	1.7	0.5	0.0	86.0	10.8	3.1	0.6	0.1	98.8	1.1	0.1	0.0	
4	300	33.5	32.5	27.0	5.8	1.3	91.6	5.5	1.5	0.3	1.1	90.3	4.7	2.1	1.5	
5	50	59.0	18.0	19.0	4.0	0.0	96.0	0.0	0.0	0.0	4.0	87.0	4.0	3.0	2.0	
Provincial Average		**57.3**	**29.2**	**10.9**	**2.2**	**0.4**	**94.7**	**3.3**	**0.9**	**0.2**	**1.1**	**94.1**	**2.8**	**1.3**	**0.7**	
Spruce																
1	1200	87.8	7.2	2.1	1.6	1.3	85.7	9.7	1.6	0.4	2.5	63.0	29.2	4.1	2.0	
2	200	92.6	4.6	2.6	0.3	0.0	94.6	5.4	0.0	0.0	0.0	86.6	8.0	3.7	1.7	
3	850	95.2	2.9	1.6	0.2	0.0	76.9	20.3	1.9	0.4	0.4	83.2	14.2	1.1	1.4	
4	900	85.1	14.6	0.2	0.0	0.0	72.3	26.6	0.7	0.4	0.0	75.7	20.4	2.6	0.8	
5	3400	66.1	22.2	8.1	2.5	1.1	81.7	13.4	3.7	1.0	0.0	44.3	35.5	11.4	5.7	
Provincial Average		**85.4**	**10.3**	**2.9**	**0.9**	**1.0**	**82.2**	**15.1**	**1.6**	**0.4**	**0.6**	**70.6**	**21.5**	**4.6**	**2.**	
Other																
1	200	95.3	1.3	3.3	0.0	0.0	97.6	0.6	1.0	0.6	0.0	94.6	5.0	0.3	0.0	
2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	100	62.0	35.3	2.6	0.0	0.0	81.3	12.6	5.3	0.7	0.0	86.0	11.3	2.6	0.0	
5	50	89.0	10.0	0.0	1.0	0.0	99.0	0.0	0.0	1.0	0.0	4.0	48.0	30.0	16.0	
Provincial Average		**82.1**	**15.5**	**2.0**	**0.3**	**0.0**	**92.6**	**4.4**	**2.1**	**0.8**	**0.0**	**61.5**	**21.4**	**11.0**	**5.3**	

:wick in 1988.

BRANCHES					STEMS					LEADERS			ROOTS	
Condition categories (%)					Condition categories (%)					Condition categories (%)			Condition categories(%	
Healthy	Trace	Light	Mod.	Sev.	Healthy	Trace	Light	Mod.	Sev.	Healthy	Damaged	Dead	Healthy	Damaged
93.4	5.2	10.7	0.0	0.3	87.8	3.8	5.7	2.2	0.5	93.8	5.8	0.3	95.4	4.6
83.0	16.4	0.2	0.4	0.0	97.6	1.4	0.4	0.6	0.0	97.4	2.6	0.0	100.0	0.0
65.0	31.3	2.7	0.2	0.7	95.6	2.8	0.5	0.4	0.6	91.8	6.2	1.9	98.9	1.1
77.8	14.5	4.7	1.0	2.0	95.1	0.8	0.8	1.5	1.9	88.6	9.9	1.5	96.8	3.2
99.0	0.0	0.0	1.0	0.0	81.0	1.0	8.0	8.0	2.0	84.0	5.0	11.0	93.0	7.0
83.6	**13.5**	**3.7**	**0.5**	**0.6**	**91.4**	**2.0**	**3.1**	**2.5**	**1.0**	**91.1**	**5.9**	**2.9**	**96.8**	**3.2**
96.4	2.8	0.3	0.0	0.4	91.7	3.6	3.5	0.9	0.5	80.5	16.5	2.9	93.3	6.5
97.1	2.3	0.3	0.3	0.0	98.6	1.4	0.0	0.0	0.0	90.8	9.1	0.0	100.0	0.0
96.7	2.7	0.4	0.1	0.0	96.5	2.1	0.4	0.6	0.1	85.2	7.4	7.3	99.7	0.3
96.0	2.9	0.8	0.3	0.0	97.4	1.9	0.1	0.2	0.5	90.4	8.5	1.1	98.5	1.5
92.5	4.2	0.9	0.2	0.1	86.8	3.1	5.9	2.5	1.6	83.8	9.3	6.9	92.4	5.7
95.7	**3.0**	**0.5**	**0.2**	**0.1**	**94.2**	**2.4**	**2.0**	**0.8**	**0.5**	**86.1**	**10.2**	**3.6**	**96.8**	**3.2**
95.6	3.6	0.3	0.3	0.0	85.3	4.6	6.3	1.3	4.0	94.6	4.3	1.0	90.0	10.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63.7	27.3	4.6	4.3	0.0	100.0	0.0	0.0	0.0	0.0	78.0	21.3	0.7	97.3	2.7
91.0	7.0	2.0	0.0	0.0	71.0	1.0	16.0	6.0	6.0	79.0	7.0	14.0	78.0	22.0
83.4	**12.6**	**2.3**	**1.5**	**0.0**	**85.4**	**1.9**	**8.1**	**2.4**	**3.3**	**83.9**	**11.0**	**5.2**	**88.4**	**11.6**

Table 3. The condition of trees in plantations in the Maritimes in 1988

Province	Species	Trees in various condition categories (%)			
		Healthy	Fair	Poor	Dead
N.B.	Pine	92.7	4.9	1.7	0.7
	Spruce	93.2	4.8	1.2	0.8
	Other	89.6	6.8	2.3	1.3
N.S.	Pine	93.4	4.9	1.5	0.2
	Spruce	90.4	7.2	1.4	1.0
	Other	81.2	14.4	3.6	0.8
P.E.I.	Pine	88.5	10.5	1.0	0.0
	Spruce	88.3	8.7	3.0	0.0
	Other	77.0	23.0	0.0	0.0

Table 4. Plantations with at least some incidence of severe or moderate damage in the Maritimes in 1988

Province	Species	Number of plantations		
		Assessed	With damage	
			Mod.	Sev.
N.B.	Pine	50	9	17
	Spruce	131	31	54
	Other	7	2	2
N.S.	Pine	21	4	11
	Spruce	36	13	16
	Other	5	1	1
P.E.I.	Pine	3	1	2
	Spruce	4	2	1
	Other	2	1	1

Table 5. Problems observed at the severe or moderate level during plantation pest assessment surveys in New Brunswick in 1988

Plantation problems	Number of plantations with problems in various DNR regions														
	Pine					Spruce					Other				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Abiotic injuries	1	–	1	4	–	5	1	2	3	13	1	–	–	1	1
Animal damage	–	–	5	1	1	1	–	–	2	4	–	–	–	–	–
Armillaria root rot	–	2	1	3	–	2	1	2	3	16	–	–	–	–	–
Blister rust	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Budmoth(s)	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–
Budworm(s)	–	–	–	–	–	9	–	3	–	7	–	–	–	–	–
Competition-Hardwood	–	–	–	–	–	–	–	–	–	4	–	–	–	1	–
Herbaceous	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–
Unspecified	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Conifer aphids	–	–	–	1	–	–	–	–	–	1	–	–	–	–	–
Faulty planting	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Frost damage	–	–	–	–	1	6	1	–	1	24	–	–	–	1	1
Globose gall rust	–	1	5	–	–	–	–	–	–	–	–	–	–	–	–
Mites	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Needle rust	1	1	3	–	–	–	–	–	–	–	–	–	–	–	–
Northern pitch twig moth	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–
Snow damage	1	–	2	2	1	1	–	2	1	3	1	–	–	–	1
Spruce bud midge	–	–	–	–	–	1	–	–	–	8	–	–	–	1	–
Spruce gall adelgid	–	–	–	–	–	1	1	2	2	7	–	–	–	–	–
Spruce gall midge	–	–	–	–	–	1	–	–	–	2	–	–	–	–	–
White pine weevil	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
Winter drying	–	–	–	1	–	2	–	–	–	–	–	–	–	–	–
Misc. problems	2	–	–	–	–	2	–	–	–	1	–	–	–	–	–